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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,257	04/19/2004	Jau-Jiu Ju	3313-1164PUS1	9398

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EXAMINER	
PARKER, DAVID H	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 10/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/826,257	JU ET AL.	
	Examiner	Art Unit	
	David H. Parker	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 8-13* is/are rejected.

7)☒ Claim(s) *7 and 14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 9/9/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. Taiwan 092134742, filed on 12/9/2003.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The term "double-wavelength", on page 4 line 22, is not clearly defined.

Claim Objections

Claims 1, 7, and 14 objected to because of the following informalities:

As to claim 1, the phrase "..apparatus for projecting a testing object.." is unclear.

As to claims 7 and 14, the term "double-wavelength dichroic mirror" is not a standard term in the art, and the specification fails to define the term.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to

a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 4, 5, 8, 10, 11, and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaami (US 2001/0,016,321).

As to claim 1, Tanaami discloses (see Fig. 4 and paragraph [0011]) a light source module for emitting a laser light (6); a dichroic mirror located on one side of the collimator to reflect the parallel laser light (7); a first converging lens (8) located on one side of the dichroic mirror (7) to focus and project the reflected laser light on the testing object (CL12) so that the testing object emits a corresponding testing fluorescent light which passes through the first converging lens (8) and travels substantially in a nearly parallel fashion to pass through the dichroic mirror (7); a filter assembly located on another side of the dichroic mirror (9) to filter scattering lights and background lights and allow only the testing fluorescent light of wavelengths of a selected range to pass through; a second converging lens located on one side of the filter assembly to converge and focus the testing fluorescent light of the selected wavelength range (10); and a photo detector located on one side of the second converging lens to receive the focused testing fluorescent light and transform the focused testing fluorescent light to a photoelectric signal (11).

Tanaami also discloses that the laser light travels to the dichroic mirror (7) in a parallel fashion (see Fig. 4). Tanaami does not specifically disclose a collimator located on one side of the light source module to receive and transform the laser light so that the laser light travels in a parallel fashion, however the use of a lens to collimate a beam of light is well known in the art, and Tanaami discloses a lens (8) to collimate

fluorescent light produced at a cell (CL12) (see paragraph [0011] lines 7-9). It would have been obvious to one of ordinary skill in the art at the time of the invention to employ such a lens to produce the collimated beam from light source 6, as shown in Fig. 4, by an arrangement analogous to the lens 8 and CL12 system, where the laser replaced the function of CL12. Motivation to do so would be to produce the collimated beam as shown in Fig. 4.

As to claim 3, Tanaami discloses all as applied to claim 1 above, in addition wherein the light source module is a laser diode (see paragraph [0011] lines 3-4).

As to claim 4, Tanaami discloses all as applied to claim 1 above, in addition wherein the dichroic mirror (7) has a flat surface to receive and reflect the laser light and form an angle of 45 degrees against the incident direction of the laser light (see Fig. 4).

As to claim 5, Tanaami discloses all as applied to claim 1 above, in addition wherein the filter assembly (9, see Fig. 4) has a flat surface to receive the testing fluorescent light and form an angle of 90 degrees against the incident direction of the testing fluorescent light.

As to claim 8, Tanaami discloses (see Fig. 4) a light source module (6), a dichroic mirror (7), a first converging lens (8), a filter assembly (9), a second converging lens (10) and a photo detector (11); wherein the dichroic mirror reflects the laser light to the first converging lens (8) which converges and focuses the laser light for projecting to a testing object (CL12) so that the testing object emits a corresponding testing fluorescent light which passes through the first converging lens to become substantially

nearly parallel for traveling forwards and passing through the dichroic mirror (7) and to be filtered by the filter assembly (9) such that only the testing fluorescent light of a selected range of wavelengths passes through, and the second converging lens (10) focuses the testing fluorescent light and transfers the testing fluorescent light to the photo detector (11) which receives and transforms the testing fluorescent light to a photoelectric signal.

Tanaami also discloses wherein the light source module (6) emits a laser light which becomes a parallel laser light to travel forwards (see Fig. 4). Tanaami does not specifically disclose a collimator; or light which is received and transformed by the collimator, however the use of a lens to collimate a beam of light is well known in the art, and Tanaami discloses a lens (8) to collimate fluorescent light produced at a cell (CL12) (see paragraph [0011] lines 7-9). It would have been obvious to one of ordinary skill in the art at the time of the invention to employ such a lens to produce the collimated beam from light source 6, as shown in Fig. 4, by an arrangement analogous to the lens 8 and CL12 system, where the laser replaced the function of CL12. Motivation to do so would be to produce the collimated beam as shown in Fig. 4.

As to claim 10, Tanaami discloses all as applied to claim 8 above, in addition wherein the light source module is a laser diode (see paragraph [0011] lines 3-4).

As to claim 11, Tanaami discloses all as applied to claim 8 above, in addition wherein the dichroic mirror (7) has a flat surface to receive and reflect the laser light and form an angle of 45 degrees against the incident direction of the laser light (see Fig. 4).

As to claim 12, Tanaami discloses all as applied to claim 8 above, in addition wherein the filter assembly (9) has a flat surface to receive the testing fluorescent light and form an angle of 90 degrees against the incident direction of the testing fluorescent light (see Fig. 4).

Claims 2 and 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaami as applied to claim 1 above, and further in view of Eyolfson et al. (US 6,256,094).

As to claim 2, Tanaami discloses all as applied to claim 1 above, however Tanaami does not disclose a photoelectric signal conversion module which includes: a photo signal conversion unit for receiving the photoelectric signal and transforming the photoelectric signal to a voltage signal; an amplifier for receiving and amplifying the voltage signal; and an analog to digital signal conversion unit for transforming the voltage signal to a digital signal. However, photoelectric signal conversion is well know in the art, as taught by Evolfson. Evolfson discloses a photoelectric signal conversion module (34) (see column 4 lines 60-64). which includes: a photo signal conversion unit (34) for receiving the photoelectric signal and transforming the photoelectric signal to a voltage signal; an amplifier for receiving and amplifying the voltage signal (34); and an analog to digital signal conversion unit for transforming the voltage signal to a digital signal (38) (see column 4 line 63-column 5 line 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the electronics of Evolfson for photoelectric signal conversion, since it would be necessary in order to process the optical signal in a digital computer.

As to claim 6, Tanaami discloses all as applied to claim 1 above, however Tanaami does not disclose wherein the filter assembly is an optical band pass filter. However, the use of optical band pass filters is well known in the art, as taught by Evolfson. Evolfson discloses wherein the filter assembly (50, Fig. 1) is an optical band pass filter (see column 5 lines 21-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a band pass filter in front of the detector. Motivation to do so would have been to improve the signal-to-noise ratio.

Claims 9 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaami as applied to claim 8 above, and further in view of Eyolfson et al. (US 6,256,094).

As to claim 9, Tanaami discloses all as applied to claim 8 above, however Tanaami does not disclose a photoelectric signal conversion module which includes: a photo signal conversion unit for receiving the photoelectric signal and transforming the photoelectric signal to a voltage signal; an amplifier for receiving and amplifying the voltage signal; and an analog to digital signal conversion unit for transforming the voltage signal to a digital signal. However, photoelectric signal conversion is well known in the art, as taught by Evolfson. Evolfson discloses a photoelectric signal conversion module (34) which includes: a photo signal conversion unit (34) for receiving the photoelectric signal and transforming the photoelectric signal to a voltage signal; an amplifier for receiving and amplifying the voltage signal (34) ; and an analog to digital

signal conversion unit for transforming the voltage signal to a digital signal (38, see column 4 line 63-column 5 line 2).

As to claim 13, Tanaami discloses all as applied to claim 8 above, however Tanaami does not disclose wherein the filter assembly is an optical band pass filter.

However, the use of optical band pass filters is well known in the art, as taught by Evolfson. Evolfson discloses wherein the filter assembly (50 Fig. 1) is an optical band pass filter (see column 5 lines 21-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a band pass filter in front of the detector. Motivation to do so would have been to improve the signal-to-noise ratio.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David H. Parker whose telephone number is (571)272-7356. The examiner can normally be reached on 8:30am to 5:00pm (EDT) Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on (571)272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

David H. Parker
Patent Examiner
Art Unit 2877
September 18, 2006

Gregory J. Toatley, Jr.
Supervisory Patent Examiner
28 Sept 06